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06/16/2006

Masashi Sato

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EXAMINER

KOLLIAS, ALEXANDER C

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

01/04/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. All outstanding claims objections and 35 USC 112, 2nd paragraph rejections are withdrawn in light of applicant's amendment filed on 9/11/2009.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.
3. No new grounds of rejection are set forth below. Thus, the following action is properly made final.
4. The terminal disclaimer filed on 9/11/2009 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of co-pending application 11/918,605 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (US 2003/0207979) in view of Lewin (US 2002/0013393).

The rejection is adequately set forth in Paragraph 5 of the Office Action mailed on 6/12/2009 and is incorporated here by reference.

With respect to the limitation recited in claim 1 drawn to the composition comprising zinc sulfide and amounts thereof, it is noted this limitation was previously recited claim 2 (now cancelled). As set forth in Paragraph 5 of the previous Office Action, Lewis discloses a polymeric composition comprising zinc sulfide and amounts thereof.

7. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (US 2003/0207979) and Lewin (US 2002/0013393) as applied to claims 1 and 3-4 above and further in view of Nakamura et al (US 2003/0207106).

The rejection is adequately set forth in Paragraph 6 of the Office Action mailed on 6/12/2009 and is incorporated here by reference.

Response to Arguments

8. Applicant's arguments filed 9/11/2009 have been fully considered but they are not persuasive.

9. Applicant argues that the flame retardants disclosed in Lewin are primarily responsible for providing flame retardancy and do not act as flame retardant adjuvants for improving the performance of the flame retardants but are rather flame retardants. However, it is noted that while Sato discloses flame retardants, i.e. magnesium hydroxide or aluminum hydroxide and though the reference refers to the compound zinc borate as an adjuvant, it is noted that zinc

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borate on its own is a flame retardant. Furthermore, it is noted that while Lewin does not refer to the compound zinc sulfide as a “flame retardant adjuvant”, the reference does disclose particular advantages of utilizing zinc sulfide. Particular attention is drawn to Page 2 Paragraph [0011] of Lewin which discloses particular advantages of utilizing zinc sulfide, i.e. upon combustion oxidation products form with the polymer as well as other ingredients in the composition to render or obtain a “flame retarding surface barrier”. That is to say the zinc sulfide effectively functions as a charring agent in the composition. Thus, given that Sato discloses that the composition may comprise a mixture of flame retardants, i.e. the metal hydroxides as well as other flame retarding compounds such as zinc borate, and is therefore open to the inclusion of other ingredients, and in particular other flame retarding compounds and given the particular advantages of zinc sulfide disclosed by Lewin, i.e. a charring agent, the Examiner's position remains that it would have been obvious to one of ordinary skill in the art to utilize the zinc sulfide disclosed by Lewin in the composition disclosed by Sato with a reasonable expectation of success.

10. Applicant argues that one of ordinary skill in the art would have combined Sato and Lewin, by substituting the metallic hydroxide disclosed in Sato with the zinc sulfide compound disclosed in Lewin in order to improve flame retardancy given that it is common and known in the art to replace one flame retardant. Furthermore, Applicant argues that there would have been no reason or rationale to have both flame retardants, magnesium hydroxide and zinc sulfide in a single composition. However, firstly it is noted, as discussed above, that Sato in fact does contain a mixture of flame retardants, the first is the metal hydroxide, i.e. magnesium hydroxide

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or aluminum hydroxide, while the second is zinc borate. Furthermore, given that Sato requires the presence of metal hydroxide compounds and in light of particular advantages of zinc sulfide as disclosed by Lewin, i.e. as forming a flame-retarding surface barrier, it is the Examiner's position that one of ordinary skill in the art would not interchange or substitute the metal hydroxide compounds in Sato for the zinc sulfide compound disclosed in Lewin but would rather utilize the zinc sulfide disclosed by Lewin in combination with the flame retarding hydroxide compounds disclosed by Sato with a reasonable expectation of success.

11. Applicant argues that one of ordinary skill in the art would not modify the composition disclosed by Sato to include the zinc sulfide compound disclosed by Lewin given that Sato discloses a cross-linked composition while the polymer in Lewin is not cross-linked. However, attention is drawn to Page 2 Paragraph [0011] of Lewin which discloses that not only is zinc sulfide readily compatible with polymers but also that small amounts yield a flame retarding effect. Further, the reference discloses the following:

"At the combustion temperature, in the presence of air, the zinc sulfide is oxidized to higher valency products, such as sulfur, zinc sulfoxylate, ZnSO_2 , thiosulfates, sulfites and finally sulfates". These oxidation reactions, which usually do not produce hydrogen sulfide are rapid at the ignition temperature, but the oxidation products, which are more reactive than the sulfide, interaction with the polymer and the other ingredients of the plastic composition to render the flame-retarding surface barrier".

That is to say, the flame retarding capability of zinc sulfide, as well as the oxidation of zinc sulfide due to combustion is a function of the compound itself, and not the compositional

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make-up of the composition or the polymer. In other words, the ability of zinc sulfide to form a flame retarding surface barrier, is a direct function of the oxidation during combustion of the compound itself, and therefore, the cross-linking in the polymer or lack thereof is independent of zinc sulfide's barrier forming properties.

Furthermore, with respect to Applicant's arguments that the polymer in the composition disclosed in Lewin is not cross-linked, attention is drawn of Page 2 [0018] and Page 3 [0021] which discloses that the polymer may be cross-linked. Further attention is drawn to Page 1 [0008] of the reference which discloses thermoplastic polymers which would broadly include cross-linked polymers and non-cross-linked polymers. Therefore, it is clear from the disclosure on Page 2 [001]-[0012] that that oxidation of zinc sulfide at combustion to form a surface barrier occurs independent of the polymer, given the disclosed thermoplastic polymers on Page 1 [0008] and cross-linking catalysts in Page 2 [0018] of the reference.

12. With regards to applicant's arguments of unexpected results, Applicant's arguments are not found to be persuasive given that while Applicant has pointed to the Specification, the Applicant did not point to any specific data or embodiments as evidence of such results.

13. With regards to Applicant's argument that claim 4 requires a non-halogenated insulated wire, cross-linked by one of radiation, peroxide, and a silane cross-linking agent, while Sato disclose crosslinking the composition by electron beam irradiation", attention is drawn to Paragraphs [0116]-[0118] of Sato which disclose "electron beam irradiation" which clear meets the limitation of claim 4 that broadly requires crosslinking by "radiation".

14. Regarding Applicant's arguments regarding Nakamura, it is noted that while the reference does not disclose all the features of the present claimed invention, the reference is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely a wire harness material comprising a substrate made of non-halogen based resin and a wire bundle comprising wires coated with a non-halogen based resin or a bundle comprising a mixture of non-halogen coated and polyvinyl chloride coated wires, and in combination with the primary reference, discloses the presently claimed invention. If the secondary reference contained all the features of the present claimed invention, it would be identical to the present claimed invention, and there would be no need for secondary references.

15. Given the terminal disclaimer filed on 9/11/2009, the previously set forth double patenting rejection of the instant claims over the claims of co-pending U.S. application 11/918,605 is withdrawn.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER C. KOLLIAS whose telephone number is (571)-270-3869. The examiner can normally be reached on Monday-Friday, 8:00 AM -5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/A. C. K./

Examiner, Art Unit 1796

/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796